

AMENDMENTS TO THE DRAWINGS

Please substitute the attached five (5) sheets of replacement drawings for the drawings originally filed.

REMARKS/ARGUMENTS

Claims 1-60 stand rejected in the outstanding Official Action. Claims 1-16, 31 and 46 have been amended and therefore claims 1-60 remain in this application.

The Examiner's acknowledgment of receipt and consideration of the previously submitted Information Disclosure Statements is very much appreciated.

The Examiner requires the submission of new drawings, as the originally submitted drawings were hand drawn or "contained handwritten elements/language." Applicants submit herewith substitute drawings for replacing the originally submitted drawings. Entry and consideration of the substitute drawings is requested.

Claims 1-15 stand objected to, with the Examiner contending that the preamble should read "An apparatus" rather than merely "Apparatus." Applicants have amended claims 1-15 as requested by the Examiner.

Claim 1 is amended to correct the language to read "said predetermined null value" as suggested by the Examiner. Similar amendments have been made to the other independent claims, i.e., claims 16, 31 and 46.

Claims 31-60 stand rejected under 35 USC §101 as allegedly being directed to non-statutory subject matter. The Examiner contends that claims 31 and 46 are directed to a computer program product and alleges that this is non-statutory subject matter. Applicants respectfully traverse the Examiner's and the Patent Office's contention that a "computer program product," whether stored on a computer readable medium or in transitory form as in an internet download, is somehow "non-statutory" subject matter because it is not tangible. However, Applicants have adopted claim preamble language which states that the computer program

product comprises a "computer readable storage medium containing computer readable instructions" which language has been indicated as acceptable by multiple PTO examiners and has been approved for use in various computer program product patents (see U.S. Patent 6,836,860 "[a] computer program product comprising a computer readable medium containing computer-readable instructions . . .). Claims 31 and 46 have been amended so that the preamble reads in this fashion. In accordance with the above amendments, claims 31-60 are believed to be in statutory format and any further rejection thereunder is respectfully traversed.

Claims 1, 6-11, 14-16, 21-26, 29-31, 36-41, 44-46, 51-56, 59 and 60 stand rejected under 35 USC §103 as unpatentable over Click (U.S. Patent 6,363,522) in view of Smith (U.S. Patent 5,430,862). Applicants have amended independent claims 1, 16, 31 and 46 to clarify that the instruction decoder, in response to a memory access instruction, compares a base register value with a predetermined null value, and, if the base register value matches the predetermined null value, the decoder triggers branching to execution of a null value exception handler.

Thus, Applicants have clarified that the presently claimed invention in each of the independent claims clearly specifies that the instruction decoder is hardware structure which performs the null checks. As noted in Applicants' specification, the inventors learned that null value exception checking can be conveniently accomplished on a hardware level, rather than maintained as a software process as is the convention approach and that there are substantial benefits for a hardware implementation.

The Click patent is a conventional application in which the amount of exception checking including null value checking is reduced if the source code is transformed into machine code. However, Click still teaches that exception checking is performed by software (the Click benefit

is improved efficiency because there is less checking – resulting in less redundancy). The Smith reference is cited by the Examiner apparently as an example of a system having hardware processing logic and a hardware instruction decoder.

While the Click reference realizes there is a benefit in terms of operating speed to remove some null checks from the software, he still requires null checking to be accomplished with software. Applicants realized that there are system speed of operation benefits by eliminating any software null value checking and instead that the null value check can be moved from source code (or even machine code) and instead accomplished in dedicated hardware. Applicants found that moving null value exception checking to the hardware level reduces the processing and resource burden of the software. This benefit is a result of Applicants' hardware recitation that the instruction decoder accomplishes the null value checking in each of Applicants' independent claims 1, 16, 31 and 46.

Because the Click reference clearly suggests maintaining null value checking in software form (even though the amount of null value checking is reduced), this would clearly lead those of ordinary skill in the art away from placing null value checking in hardware form as in the currently claimed invention. Because the Click reference teaches away from Applicants' claims, even if Click were combined with Smith, there is no basis for an obviousness rejection and any further rejection thereunder is respectfully traversed.

Additionally, in section 12 on page 4 of the Official Action, the Examiner admits that the Click reference does not teach "processing logic operable to perform data processing operations" and "an instruction decoder operable to decode program instructions to control said processing logic to perform data processing operations specified by said program instructions." These

admissions are very much appreciated. These further clarify the fact that the Click reference does not teach Applicants' claimed invention at all, and would actually lead those of ordinary skill in the art away from Applicants' claimed invention.

The Examiner alleges that the above features admitted to be missing from the Click reference are taught in the Smith patent. However, the Examiner does not include any allegation that either primary reference Click or secondary reference Smith teach both (A) any hardware which accomplishes the base register value comparison with the predetermined null value; and (B) triggering branching to execution of a null value exception handler. Should the Examiner believe either the Click or Smith reference contain any disclosure which could vaguely be considered suggestive of Applicants' claimed hardware (instruction decoder), she is respectfully requested to identify such structure. Absent such structure, even if Click and Smith were combined, they could not render obvious the subject matter of Applicants' independent claims 1, 16, 31 and 46.

Moreover, the Examiner has merely made a conclusory statement that it would be "obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the processor of Smith in the device of Click to increase processor performance and compatibility." This conclusory statement fails to provide any "reason" or "motivation" for combining the examiner selected teachings in the Click and Smith references. Moreover, why would one ignore the fact that Click teaches the need for null value comparison in software, rather than in hardware? The fact that Click teaches away from the claimed invention further evidences the non-obviousness of Applicants' claimed invention in view of the Click and Smith references.

In view of the above, there is simply no basis for a rejection of independent claims 1, 16, 31 and 46 over the Click/Smith combination and any further rejection thereunder is respectfully traversed.

Claims 2-5, 12, 13, 17-20, 27, 28, 32-35, 42, 43, 47-50, 57 and 58 stand rejected under 35 USC §103 as unpatentable over Click in view of Smith and further in view of Mirapuri (U.S. Patent 5,590,294). Inasmuch as this rejection relies upon the Click and Smith combination and these rejected claims depend from independent claims 1, 16, 31 and 46, the above comments regarding the Click/Smith references, both individually and in combination, are herein incorporated by reference.

The Examiner does not make any allegation that the Mirapuri reference contains any hardware such as Applicants' claimed instruction decoder which accomplishes the null value checking or triggers branching to execution of a null value exception handler. Should the Examiner upon reflection believe that Mirapuri teaches such structure, she is respectfully requested to identify such structures. Absent such identification, even if Click, Smith and Mirapuri were combined, they would fail to render obvious Applicants' claimed invention.

Additionally, the Examiner has provided no "reason" or "motivation" for combining the Click, Smith and Mirapuri references. The Examiner also has ignored the fact that Click's teaching of using software for null value checking specifically teaches away from locating null value checking in hardware as claimed. There is clearly no recognition by any of the cited prior art references of any value in moving null value checking from source code or even machine code down to hardware or the advantageous reduction in processing and resource burden in the software of such a change. Accordingly, any further rejection of claims dependent on

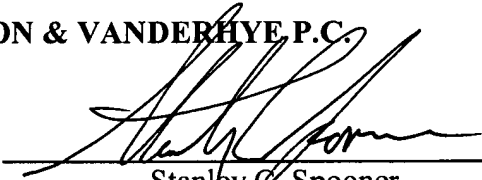
independent claims 1, 16, 31 and 46 over the Click/Smith/Mirapuri combination is respectfully traversed.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that amended claims 1-60 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, she is respectfully requested to contact Applicants' undersigned representative.

Respectfully submitted,

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By: _____


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